

# PATENT SPECIFICATION

849,433

NO DRAWINGS.



Date of filing Complete Specification : Aug. 18, 1958.

Application Date : Aug. 22, 1957. No. 26599/57.

Complete Specification Published : Sept. 28, 1960.

Index at Acceptance :—Class 91, D2(H:L:N:P), S2(H:L:N:P).

International Classification :—C11d.

## COMPLETE SPECIFICATION.

### Hair Washing Preparations.

5 I, RAYMOND WOOLSTON, a British Subject, of Meadow Cottage, Creeting St. Mary, Suffolk, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention concerns improvements in and relating to detergent compositions and especially to hair washing preparations.

15 Hair shampoos are known which contain as active ingredients alkyl or alkylaryl sulphonates, alkyl sulphates, fatty acid ethanolamides or mixtures thereof, as well as sucrose esters and other sucrose derivatives (known generally as sugar-based detergents) and the alkali metal soaps, such as sodium, potassium and ammonium oleates, 20 stearates and other fatty acid salts or fatty derivatives. It is usual to add carriers thereto, such as sodium sulphate, and small amounts of additional substances such as lanolin and perfume.

25 Household detergents are also known which contain as active ingredients alkyl or alkylaryl sulphonates and alkyl sulphates or mixtures thereof and which contain, in addition, from 20—40%, or even more of a carrier. Some of the carriers used improve synergistically the activity of the active ingredients and also exhibit per se a strong degreasing action. Substances which have been used as a carrier in household detergents are, for example, sodium phosphate, sodium sulphate and borax. It is 35 further known to incorporate minor amounts of silicon-containing compounds, such as sodium silicate, into household detergents of the above kind in order to give improved 40 properties to the product.

Specification No. 805,768 describes and

claims a detergent composition comprising a surface active agent, a solvent mixture comprising a hydrophilic and a hydrophobic organic liquid, a water-repellent silicone oil, an emulsion stability agent, preferably colloidal silica, and a hydroxy carboxylic acid. The present invention may be regarded as a selection from the matters described and claimed in Specification No. 805,768.

45 It has now been found that liquid silicones may be added as an active ingredient to liquid, paste or powder hair washing preparations in order to impart a sheen to the hair, improve the setting properties of the hair and decrease the length of time required to dry the hair after shampooing.

50 According to the invention there is provided a detergent composition for use as a hair washing preparation consisting essentially of a natural detergent or synthetic detergent, such as an alkyl sulphate or an alkylaryl sulphonate, a fatty acid ethanolamide or mixtures thereof, and a liquid silicone in an amount of up to 30% by weight but preferably in the range of 0.05—15% by weight and particularly in an amount of 4% by weight.

55 I have found that polymerised dimethyl and diethyl silanediols, with viscosities within the range of 1.0 to 2,500,000 centistokes, but preferably 300 centistokes, may be used in the preparation of the detergent compositions according to the invention. Preferred active detergent materials include, 60 by way of example, ammonium and sodium lauryl sulphates and mono-, di- and tri-ethanolamine lauryl sulphates, as well as other fatty alcohol sulphates, sucrose esters and other sucrose derivatives, commonly known as sugar-based detergents, and alkali metal or ammonium soaps, such as sodium, potassium and ammonium oleates, stearates 70 75 80

**THIS PAGE BLANK (USPTO)**

or salts of other fatty acid or fatty derivatives.

It is preferable that the liquid silicone be broken down into very fine particles and intimately mixed with the active detergent material and it has been found that this is best accomplished by initially stirring the silicone fluid with a small quantity of the total active detergent material to be used, it being preferable to employ a high speed stirrer for this purpose.

Since some of the active detergent materials which may be used are solids—usually available in the form of flakes or powder—it may be necessary to apply heat in order to ensure an adequate dispersal of the liquid silicone in the detergent, thus, in the case of triethanolamine lauryl sulphate it is necessary to stir the initial mixture of detergent and liquid silicone at a temperature of about 55° C.

The stirring is continued and the remainder of the detergent is slowly added to the dispersed silicone-detergent mixture. In order to obtain a detergent composition with a consistency suitable for convenient and immediate application, water may be added in an amount of up to 75% by weight of the total composition. Small amounts of additional substances such as perfumes and lanolin may be added to the detergent compositions.

Use of the detergent compositions according to the invention leaves a sheen on the hair, improves the setting properties of the hair and decreases the length of time required to dry the hair after shampooing. It has also been noted that the use of the detergent compositions according to the invention do not adversely affect the use of silicone fluids and resins such as are often contained in aerosol-type hair sprays.

The sheen which the detergent compositions according to the invention impart to the hair appears to be caused by the retention of a thin film of liquid silicone on the hair, this film remaining tenaciously attached to the hair for a considerable period of time.

#### WHAT I CLAIM IS:—

1. A hair-washing preparation consisting essentially of one or more natural or

synthetic detergents and a liquid silicone in an amount of up to 30% by weight.

2. A preparation according to Claim 1, wherein the silicone is present in an amount of between 0.05—15% by weight.

3. A preparation according to Claim 2, wherein the silicone is present in an amount of 4% by weight.

4. A preparation according to any of the preceding claims, wherein the silicone has a viscosity within the range of 1.0—2,500,000 centistokes.

5. A preparation according to Claim 4, wherein the silicone has a viscosity of 300 centistokes.

6. A preparation according to any of the preceding claims, wherein the detergent is ammonium or sodium lauryl sulphate, mono-, di- or triethanolamine lauryl sulphate, another fatty alcohol sulphate, a sugar-based detergent or an alkyl metal or ammonium soap.

7. A preparation according to any of the preceding claims, wherein up to 75% by weight of the total composition is water.

8. A preparation according to any of the preceding claims, wherein there is additionally added thereto a perfume and/or lanolin.

9. Hair-washing preparation substantially as hereinbefore described.

10. A process for the production of preparations according to any of Claims 1—9, wherein the detergents are gradually added with stirring to the silicone, followed by the addition of the desired amount of water.

11. A process according to Claim 10, wherein the detergents and silicone are mixed together at an elevated temperature.

12. A process for the production of preparations according to any of Claims 1—9, substantially as hereinbefore described.

13. Hair-washing preparations whenever prepared by the process according to any of Claims 10—12.

CARPMAELS & RANSFORD,

Agents for the Applicant,  
24 Southampton Buildings,  
London, W.C.2.

#### PROVISIONAL SPECIFICATION.

#### Hair Washing Preparations.

I, RAYMOND WOOLSTON, a British Subject, of Meadow Cottage, Creeting St. Mary, Suffolk, do hereby declare this invention to be described in the following statement:—

This invention concerns improvements in and relating to detergent compositions and especially to hair washing preparations.

Hair shampoos are known which contain

as active ingredients aryl, alkyl or aralkyl sulphates and sulphonates, diethanolamines or mixtures thereof. It is usual to add carriers thereto, such as sodium sulphate, and small amounts of additional substances such as lanolin and perfume.

Household detergents are also known which contain as active ingredients aryl,

alkyl or aralkyl sulphates or sulphonates or mixtures thereof and which contain, in addition, from 20—40%, or even more, of a carrier intended to improve synergistically the activity of the active ingredients and also because they exhibit per se a strong degreasing action. Substances which have been used as a carrier in household detergents are, for example, sodium phosphate, sodium sulphate and borax. It is further known to incorporate minor amounts of liquid silicones into household detergents of the above kind in order to give improved water resistance to the articles washed and thus increase their length of life.

It has now been found that liquid silicones may be added as an active ingredient to liquid, paste or powder hair washing preparations in order to impart a sheen to the hair and in order to improve the setting properties of the hair.

According to the invention there is provided a detergent composition for use as a hair washing preparation having as active ingredients aryl, alkyl or aralkyl sulphates or sulphonates, substituted or unsubstituted ethanolamides or mixtures thereof, and a liquid silicone or other silicon containing compounds in an amount in the range of 0.05 to 15% by weight, but preferably about 4% by weight.

It has been found that polymerised dimethyl and diethyl silanediols, or other silicon containing compounds, with viscosities within the range of 20 to 100,000 centistokes, but preferably about 300 centistokes, may be used in the preparation of the detergent compositions according to the invention. Preferred active detergent materials include, by way of example, ammonium and sodium lauryl sulphates and mono-, di- and tri-ethanolamine lauryl sulphates.

It is preferable that the liquid silicone be broken down into very fine particles and intimately mixed with the active detergent material and it has been found that this is

best accomplished by initially stirring the silicone fluid with a small quantity of the total active detergent material to be used, it being preferable to employ a high speed stirrer for this purpose.

Since some of the active detergent materials which may be used are solids—usually available in the form of flakes or powder—it may be necessary to apply heat in order to ensure an adequate dispersal of the liquid silicone in the detergent, thus, in the case of triethanolamine lauryl sulphate it is necessary to stir the initial mixture of detergent and liquid silicone at a temperature of about 55° C.

The stirring is continued and the remainder of the detergent is slowly added to the dispersed silicone-detergent mixture. In order to obtain a detergent composition with a consistency suitable for convenient and immediate application, water may be added in an amount of up to about 60% by weight. Small amounts of additional substances such as perfumes and lanolin may be added to the detergent compositions.

Use of the detergent compositions according to the invention leaves a sheen on the hair and also improves the setting properties of the hair. It has also been noted that the use of the detergent compositions according to the invention do not adversely affect the use of silicone fluids and resins such as are often contained in aerosol-type hair sprays.

The sheen which the detergent compositions according to the invention impart to the hair appears to be caused by the retention of a thin film of liquid silicone or silicon containing compound on the hair, this film remaining tenaciously attached to the hair for a considerable period of time.

CARPMAELS & RANSFORD,  
Agents for the Applicant,  
24 Southampton Buildings,  
London, W.C.2.